

seating holes for sample beakers 32 arranged along a circular track on a circumference of the sample tray. The sample tray 4 has a handle 6, so that it can first be filled with samples 32 and then grasped by the handle 6 and set on the rotary shaft 3 that protrudes from the base housing 1. The rotary shaft 3 may enter, e.g., into a form-locking coupler opening below the handle 6 for a rotationally keyed engagement between the sample tray and the rotary shaft.

To simplify the drawing, only a part of the seating holes 5 in Fig. 1 are shown occupied by sample beakers 32. Instead of seating holes, it is also possible to hold the beakers 32 in clamping brackets arranged at the outside circumference of a tray disk 4 of smaller diameter. An open beaker 32a shown to the right of a tower 16 is identified as a conditioning or washing beaker by a magnet marker 30 (to be described later) that is placed in front of the beaker. In contrast to the beaker 32a, the beakers 32 shown to the left of the tower 16 are covered with a lid 32'. The lid 32' has several purposes: to protect operators from bad odors emanating from the samples; to prevent volatile solvents from escaping from the samples, which would falsify the analysis; and finally, to prevent foreign substances from getting into the samples without the intention of the operating personnel, which could likewise cause errors in the result of the analysis.

The sample tray 4 can have code markings at its underside, such as magnetic, optical, or other markings,

e.g., to communicate to the analyzer system the type of analysis to be made on the samples 32 in the holding accommodations 5 and/or the movements to be performed by the drive mechanism 2. For example, it may be intended to analyze only the contents of every other beaker 32, while the beakers located in between are intended for a different program, e.g., a washing routine for analytical electrodes, or a conditioning routine. At least one stationary reader device is arranged on the topside of the base housing 1, for example at the location 7, to read the markings that are arranged on the sample tray 4, e.g., at the locations 8. The result of the reading is communicated to a controller module 9 which, in turn, sends commands to the drive mechanism 2 through a signal line 10 and/or transmits the reading through an internal signal line 11 and a connected external cable 11' to a controller instrument 12 that is preferably designed as a computer. The computer 12 can be used simultaneously to evaluate measurement data that are delivered to it by cables 13 (the latter shown only partially, without the measuring probes that they are connected to). However, it is preferred if at least the keypad 112 of the computer 12 is mounted directly on the base housing 1, as indicated symbolically by the broken lines 112', in order to keep the system as much as possible from becoming cluttered with cables.

In accordance with the aforementioned German patent application DE 100 18 876.1 which is hereby incorporated by reference in the present disclosure, the housing 1 has

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mounting holes spaced from each other at a distance corresponding either exactly to the distance between the holding accommodations 5 of the sample tray 4 or to a simple fraction of the distance, e.g., one half or one fourth. When an analyzer module configured as a tower 16 is fastened to the aforementioned mounting holes by means of fastening screws 17, a foot 18 of the tower 16 rests on the top surface of the base housing, while a vertical surface of the tower rests against the outside wall 14 of the base housing. This mounting arrangement ensures a stable installation of the tower 16 with only two mounting screws 17. A lid-opening device 50 for opening lids 32' that may be covering the sample beakers 32 is likewise installed by means of screws 17 (only one is shown in the drawing) in the aforementioned mounting holes at a location ahead of the tower 16 in relation to the rotary movement of the sample tray 4.

Of course, one could also use more than two mounting screws 17. Furthermore, the screws could be replaced by other types of fasteners, such as dowel pegs, pins, gripping hooks, etc. Also, a further horizontal mounting surface of the tower 16 or the lid-opening device 50 could reach below the bottom to the base housing 1, as the latter is in any event raised from the work surface of a laboratory counter (not shown), e.g., by adjustable feet 21.

A further advantage arises from the fact that each tower 16 can be equipped with its own reader device to direct the program or the sequence of motions of the sample tray 4